Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Original) A fluidic system for analysing biomolecules comprising an inlet port, an outlet port, a set of microelectrodes within a channel connecting the inlet and outlet ports, means for flowing a fluid through the fluidic system, means for flowing a suspension of a given type of microparticles through the fluidic system, means for applying an AC voltage having an appropriate frequency for retaining a given type of microparticles in the region of the electrodes by means of positive (attractive) dielectrophoresis, the microparticles being functionalised with appropriate ligand molecules, and means for flowing a sample fluid containing the analyte specifically bound by the ligand molecules on the microparticles through the fluidic system, thereby perfusing the retained microparticles.

2. (Original) A system as claimed in Claim 1 comprising means for flowing a plurality of types of microparticles with different dielectric properties through the fluidic system, and

means for applying different frequency voltages to the electrodes to retain selected ones of the types of microparticles.

3. (Original) A system as claimed in Claim 2 comprising a plurality of sets of microelectrodes within the channel at spaced intervals, and means for applying voltages of selected frequencies to each of the sets of electrodes to retain selected types of microparticles at the electrodes.

4. (Currently Amended) A system as claimed in ~~any of Claims 1 to 3~~ Claim 1 comprising means for detecting the presence of the analyte bound to the microparticles at the retention site of the microparticles.

5. (Currently Amended) A system as claimed in ~~any of Claims 1 to 4~~ Claim 1 comprising means for flowing a solution containing reagent molecules specific to the analyte molecules through the fluidic system to perfuse the analyte bound by the ligand molecules on the microparticles.

6. (Original) A system as claimed in Claim 5 in which the presence of reagent molecules bound to the microparticles is detected at the retention site of the microparticles.

7. (Currently Amended) A system as claimed in ~~any preceding Claim~~ Claim 1 comprising means for flowing a rinsing liquid through the fluidic system to remove unbound microparticles and analyte molecules, respectively.

8. (Currently Amended) A system as claimed in ~~any preceding Claim~~ Claim 1 comprising means for removing the AC voltage from the microelectrodes to release the microparticles and means for detecting the presence of analyte bound to the microparticles at a site separate from the interdigitated electrodes.

9. (Currently Amended) A system as claimed in ~~any preceding Claim~~ Claim 1 in which the fluidic system comprises a support with microstructured microelectrodes and structured microchannel(s), the support being of non- conducting material, such as glass or silicon, or a conducting material wherein each

microchannel is coated with a non-conducting material, such as glass, silicon, PMMA, PDMS or other polymer.

10. (Currently Amended) A system as claimed in ~~any preceding Claim~~ Claim 1 in which the microparticles consist of polystyrene microbeads with diameters between 100nm and 10μm.

11. (Currently Amended) A system as claimed in ~~any preceding Claim~~ Claim 1 in which the fluid flow is generated by a syringe pump.

12. (Currently Amended) A system as claimed in ~~any preceding Claim~~ Claim 1 comprising a means for detecting the presence of the analyte bound to the microparticles, wherein the detecting means comprises a fluorescence microscope.

13. (Original) A system as claimed in Claim 12 in which the ligand bound to the microparticles is strepavidin and the analyte contained in the sample liquid is flourescein labelled biotin.

14. (Currently Amended) A system as claimed in ~~any of Claims 1 to 7 and 9 to 13 when dependent on any of Claims 1 to 7~~ Claim 1 comprising means for applying the AC voltage to the electrodes for a sufficient time to cause at least some of the microparticles to adhere to the electrodes and means for removing the AC voltage before flowing the sample fluid through the fluidic system.

15. (Currently Amended) A system as claimed in ~~any preceding claim~~ Claim 1 in which the microelectrodes comprise interdigitated electrodes extending across the channel.

16. (Original) A method for analysis of biomolecules comprising the steps of:

a) providing a fluidic system having an inlet and outlet port and containing a set of microelectrodes and a means of moving fluid through the fluidic system;

b) applying an AC voltage to said electrodes with an appropriate frequency for retaining in the region of the electrodes a given type of microparticles which are functionalised with appropriate ligand molecules by positive (attractive) dielectrophoresis;

c) flowing a suspension of said type of microparticles through the fluidic system and retaining the microparticles at the microelectrodes by means of positive dielectrophoresis;

d) flowing a sample fluid containing the analyte specifically bound by the ligand molecules on the microparticles through the fluidic system, thereby perfusing the retained microparticles; and

e) detecting the presence of analyte bound to the microparticles.

17. (Original) A method as claimed in Claim 16 in which in step c) a plurality of types of microparticle having different dielectric properties are flowed through the fluidic system and the type of microparticle specified by the choice of frequency in step b) is retained at the microelectrodes by means of ~~dieletrophoresis~~ dielectrophoresis.

18. (Original) A method according to Claim 17 in which the presence of the analyte bound to the microparticles is detected at the retention site of the microparticles.

19. (Currently Amended) A method according to ~~any of Claims 16 to 18~~ Claim 16 in which after step d) a solution containing reagent molecules, specific to the analyte molecules, is flowed through the fluidic system, thereby perfusing the analyte bound by the ligand molecules on the microparticles.

20. (Original) A method according to Claim 19 in which the presence of reagent molecules bound to the microparticles is detected at the retention site of the microparticles.

21. (Currently Amended) A method according to ~~any of Claims 16 to 20~~ Claim 16 in which after steps c) and d) a rinsing liquid is flowed through the fluidic system to remove unbound microparticles and analyte molecules, respectively.

22. (Original) A method according to Claim 21 in which the presence of the analyte bound to the microparticles is detected at the retention site of the microparticles.

23. (Currently Amended) A method according to Claim 21 ~~or Claim 22~~ in which after the rinsing after step d) a solution containing reagent molecules, specific to the analyte molecules,

is flowed through the fluidic system, thereby perfusing the analyte bound by the ligand molecules on the microparticles and after this step, a rinsing liquid is flowed through the fluidic system for removing unbound reagent molecules.

24. (Original) A method according to Claim 23 in which the presence of reagent molecules is detected at the retention site of the microparticles.

25. (Currently Amended) A method according to ~~any of Claims 16 to 24~~ Claim 16 in which in step c) the microparticles are retained on the electrodes during the performance of steps d) and e) by maintaining the AC voltage applied to the electrodes while steps d) and e) are performed.

26. (Currently Amended) A method according to ~~any of Claims 16 to 24~~ Claim 16 in which the AC voltage is maintained for a sufficient time that at least some of the microparticles are caused to adhere to the electrodes when the AC voltage is removed and steps d) and e) are performed subsequent to the removal of the AC voltage from the electrodes.

27. (Original) A method according to Claim 26 in which the time is greater than ten minutes.

28. (Original) A method according to Claim 24 in which the microparticles are released after analyte binding by removing the AC voltage from the microelectrodes and in which the presence of analyte bound to the microparticles is detected at a separate site within the fluidic system.

29. (Currently Amended) A method according to ~~Claims~~ Claim 24 in which the microparticles are released after analyte binding by removing the AC voltage to the microelectrodes and in which the presence of analyte bound to the microparticles is detected outside the fluidic system.

30. (Original) A method according to Claim 23, where the microparticles are released after reagent binding by no longer applying the AC voltage to the microelectrodes and where the presence of reagent bound to the microparticles is detected at a different site within the fluidic system.

31. (Original) A method according to Claim 23 in which the microparticles are released after reagent binding by no longer applying the AC voltage to the microelectrodes and where the presence of reagent bound to the microparticles is detected outside the fluidic system.

32. (Original) A method according to Claim 21 in which the microparticles are released after rinsing by removing the AC voltage to the microelectrodes and in which the presence of analyte bound to the microparticles is detected at a separate site within the fluidic system.

33. (Original) A method according to Claim 21 in which the microparticles are released after rinsing by removing the AC voltage to the microelectrodes and in which the presence of analyte bound to the microparticles is detected outside the fluidic system.

34. (Original) A method according to Claim 23 in which the microparticles are released after rinsing by removing the AC voltage from the microelectrodes and in which the presence of

analyte bound to the microparticles is detected at a separate site within the fluidic system.

35. (Original) A method according to Claim 23 in which the microparticles are released after rinsing by removing the AC voltage from the microelectrodes and in which the presence of analyte bound to the microparticles is detected outside the fluidic system.

36. (Currently Amended) A method according to ~~any of Claims 16 to 35~~ Claim 16 in which the fluidic system comprises an inlet and outlet port and a support with microstructured microelectrodes and structured microchannel(s), the support being of non conducting material, such as glass or silicon, or a conducting material wherein each microchannel is coated with a non conducting material, such as glass, silicon, PMMA, PDMS, or other polymer.

37. (Currently Amended) A method as claimed in ~~any of claims 16 to 36~~ Claim 16 in which the microelectrodes comprise interdigitated electrodes extending across the width of the channel.

38. (Original) A method according to Claim 37 in which the interdigitated microelectrodes span the whole width of the fluidic channel, have a width between 1 and 20μm and a gap between the electrodes between 1 and 20μm.

39. (Currently Amended) A method according to ~~any of Claims 16 to 38~~ Claim 16 in which the microparticles consist of polystyrene microbeads with diameters between 100nm and 10μm.

40. (Currently Amended) A method according to ~~any of Claims 16 to 39~~ Claim 16 in which the fluid flow is generated by a syringe pump, the ligand bound to the microbeads is streptavidin and the analyte contained in the sample liquid is fluorescein labelled biotin, and in which the detection of fluorescein labelled biotin bound to the microbeads functionalised with streptavidin is carried out using a fluorescence microscope.